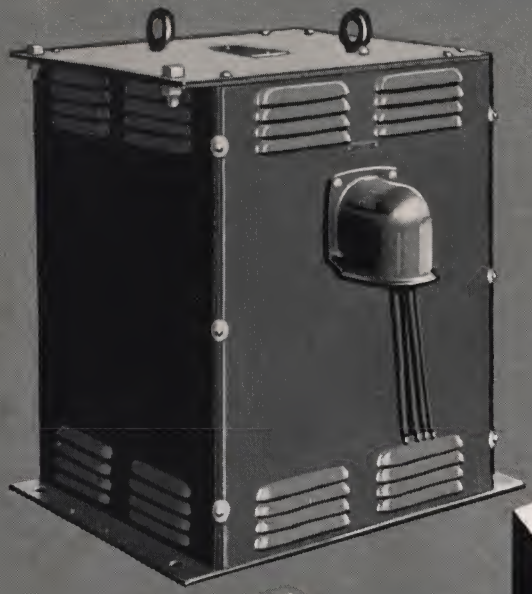

AIR-COOLED TRANSFORMERS

FOR LIGHTING AND POWER SERVICE

GENERAL ELECTRIC

AIR-COOLED TRANSFORMERS

FOR LIGHTING AND POWER SERVICE

GENERAL ELECTRIC
SCHENECTADY, N. Y.

GEA-897G
Supersedes GEA-897F

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YOU will find many places in your plant where G-E air-cooled transformers can save you money by providing the right voltage for the most economical operation of your equipment.

G-E air-cooled transformers are safe—no fireproof vaults are required. Because of their small size and compact construction, they may be installed in any convenient location.

They are easy to install, since they are light in weight, require no special mountings, and can be used with either conduit or open wiring. They are neat in appearance and may be placed in any location where cleanliness is essential.

Operating records show that they require practically no inspection or maintenance.

G-E transformers are constructed with careful attention to perfection of detail. High quality is demanded in all parts and materials, and each completed unit is thoroughly tested and inspected in order to assure satisfactory operation and long life. Their high quality is due, in no small degree, to the fact that they benefit from the extensive basic research in the famous General Electric laboratories.

The standard units listed on the following pages should meet most of your requirements. However, a large stock of standard parts is maintained, so that special units can be quickly designed and built to meet any special needs. You will find conveniently located stocks ready to serve you.

All standard ratings within the limits of the Underwriters' requirements (10 kva and equivalent physical size) are on the approved lists of the Underwriters' Laboratories.

Your nearest G-E representative will be glad to assist you in the selection of the right equipment for every application.

WHERE TO USE G-E AIR-COOLED TRANSFORMERS

The following examples are typical of the great variety of applications for which these transformers may profitably be used

LIGHTING

1. Insulating a lighting circuit from a power circuit.

2. Insulating a single-wire lighting circuit in mines.

3. Insulating telephone circuits (before rectification) from lighting circuits.

4. For boosting low line voltage to obtain more efficient lamp operation.

5. Operating low-voltage portable lamps. Thirty-two volt circuits are often advisable for portable equipment used in damp locations where accidental grounds can be readily established.

6. Obtaining a 115/230 volt, 3-wire circuit from a 2-wire system.

7. In some cases, power companies permit stepping down the power-circuit voltage for lights. This results in a saving by eliminating the need for a separate lighting circuit and by obtaining a lower rate for the lighting load.

8. Autotransformers, properly located, greatly reduce light flicker caused by starting motors on long 115/230-volt, 3-wire secondary circuits. Complete information is given in publication GEA-1971.

9. Low-voltage lamps (below 115 volts) are often more economical and have longer life than those rated at higher voltages. Low-voltage lamps are also used when a highly concentrated source of illumination is desired. Among such applications are:

Signs
Airport lighting
32-volt portable lamps
Lamps subject to vibration
Projectors
Railway cars and buses (during long stops and at terminals)

POWER

1. By distributing power at 460 or 575 volts and stepping down at convenient locations to supply lights and other 115-volt devices, lower line losses, reduced copper cost, and improved voltage regulation can be obtained.

2. By operating low-voltage portable tools from power circuits instead of lighting circuits, advantage can be taken of lower power rates.

3. For operating 32-volt portable tools in packing plants, mines, tank cars, etc.

4. Balancing the voltage on a single-phase, 3-wire system to prevent undervoltages which would result in unsatisfactory operation of equipment.

5. Boosting or bucking the voltage of single-phase or three-phase circuits, to operate equipment requiring somewhat more or less than the distribution voltage.

6. When a phase change is made on a power system, transforming from three- to two-phase will often permit the use of equipment which otherwise would have to be replaced.

7. Supplying heating elements for:
Heat-treating furnaces
Vitreous-enameling furnaces
Drying ovens
Ammonia dissociators

8. Welding:
Atomic-hydrogen welding
Resistance welding (such as spot and seam welding)
Flash welding

9. High-current testing of devices such as ammeters, current-carrying contacts, and relays.

10. Motor starting.

11. Arcs.

12. Blueprint machines.

CONTROL AND SIGNAL APPLICATIONS

Air-cooled transformers rated 7½ to 150 volt-amperes, to supply control and signal circuits from lighting or power circuits, are described and listed in publication GEA-1358B.

CONSTRUCTION OF G-E AIR-COOLED TRANSFORMERS

Type M—For indoor or outdoor service

Type D—For indoor service only

In transformers rated 15 kva and below, as well as autotransformers of equivalent physical size, the Type M construction (Fig. 1) is used. It forms a solid, compact unit which dissipates heat from its external surfaces by radiation. In the larger sizes (the Type D), natural-draft construction (Fig. 2) is used. The transformer is effectively cooled by air currents which enter ventilating holes in the housing and circulate around the core and coils.

The materials used in General Electric air-cooled transformers are of unusually high quality because their development and application are guided by constant research.

These transformers are built in standard ratings up to 50 kva and 600 volts, 60 cycles.

All standard ratings are designed to operate at rated frequency and on any of the rated voltages, without exceeding a temperature rise of 55 C.

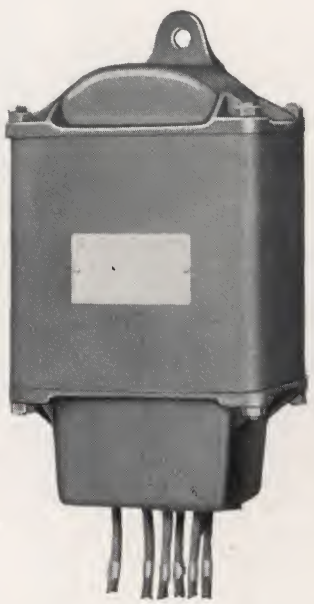


Fig. 1
Type M transformer

Fig. 2
Type D transformer

TYPE M

The windings of Type M transformers are arranged concentrically on the center leg of a three-legged core. Each conductor is insulated with enamel or cotton, or both, depending upon the size of the wire and the voltage for which the coil is designed. High-quality paper insulation is used between layers, and the windings are insulated from the core by means of heavy fiber channels.

The cast-iron or sheet-steel end housings, which protect the coils and provide mounting lugs, are held in place by bolts through the core.

The complete transformer assembly is thoroughly dried in a vacuum and filled, under pressure, with a special varnish. This treatment changes the structure from a mechanical assembly of component parts to a cohesive unit, by binding each turn, layer, and other component, to its adjacent parts throughout the structure. This treatment eliminates air pockets, increases the dielectric strength of the insulating materials, and seals all parts against the entrance of moisture.

Weatherproof cables, used for external leads, are brought out through a heavy fiber bushing set in the lower end housing. Practically all Type M transformers can be connected directly into a conduit system by the use of standard junction boxes described later.

The Type M construction is particularly adaptable when phase-changing or three-phase transformation is desired. These transformations are usually affected by the use of two units T-connected. The "main" and "teaser" may be connected by a metal sleeve forming a single unit, or each may be equipped with end housings for separate mounting. All standard phase-changing transformers are of the single-unit construction (Fig. 4).

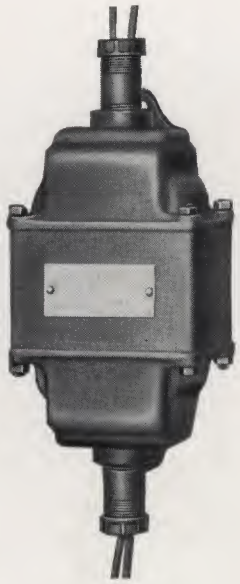


Fig. 3
Type M transformer for lighting such isolated locations as oil wells and mines

Fig. 4
Type M phase-changing or T-connected three-phase transformer, single-unit construction

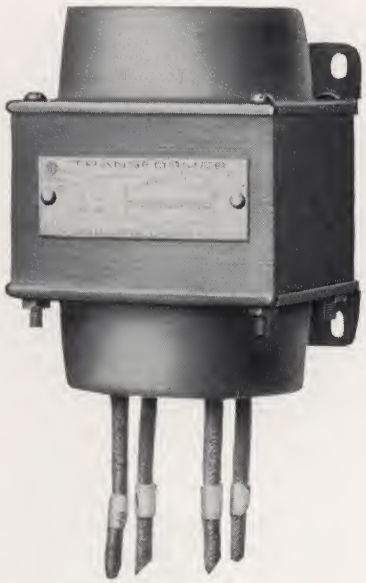


Fig. 5
Small Type M transformer

Fig. 6
Type M transformer. This construction is standard for 10- and 15-kva ratings. This view shows wiring-compartment cover and side knockouts

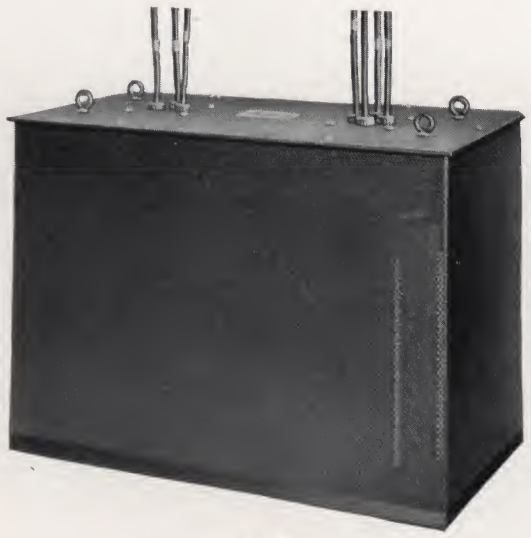


Fig. 7
Phase-changing, or T-connected, three-phase Type D transformer

TYPE D (natural draft)

The core and coils, shown in Fig. 8, are similar to those used in General Electric distribution transformers. This construction results in a transformer that has high dielectric strength, high electrical efficiency, and mechanical durability. The core and coils are clamped in a rigid steel framework, to which the housing is securely bolted.

The housing of the standard single-phase Type D transformers consists of a fabricated steel framework to which steel side plates are bolted. Louvers at the top and bottom of the side plates provide ventilation. The transformer is normally arranged for floor mounting, but, when desired, can be wall mounted by the use of angle-iron brackets. Leads are brought out, for open wiring, through bushed holes in the side plates. For enclosed wiring, conduit can be run directly into these side plates; or, when desired, 90-degree junction boxes, described later, may be used, as shown in Fig. 9. The side plates are removable to give ready access to the interior of the transformer for making connections; also, they are interchangeable so that connections can be made through the side, front, or rear. These transformers are dripproof, but, because of their open construction, they are suitable for indoor service only.

Three-phase and phase-changing Type D transformers and autotransformers have core, coils, and housing similar to those of the single-phase unit, except that the leads are brought out through the cover as shown in Fig. 7. For conduit connections, these units require the use of 90-degree junction boxes.

Fig. 8
Core and windings of single-phase Type D transformer

Fig. 9
Standard single-phase Type D transformer with junction box

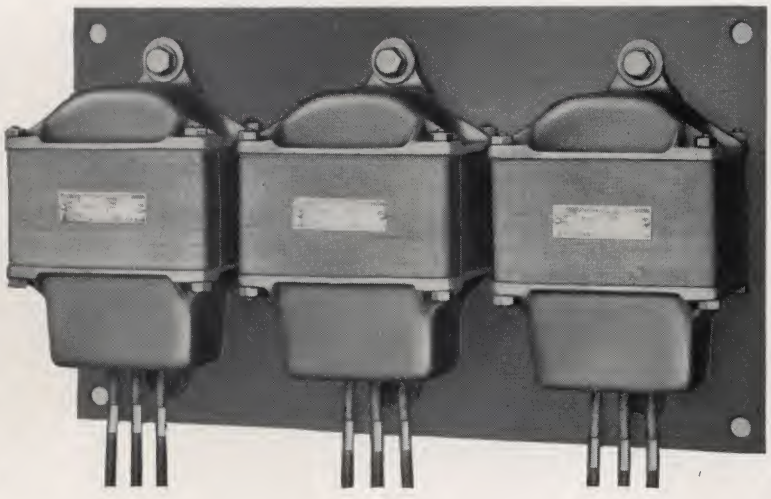


Fig. 10
Three Type M autotransformers mounted on metal plate for three-phase applications

CONDUIT CONNECTIONS

Type M transformers, with the exception of the larger sign-lighting and boosting transformers, may be adapted to enclosed wiring installations through the addition of a junction box (Fig. 14) directly over the leads and bushing (Fig. 11 and 12). The junction box can readily be attached to units already installed, as well as to new transformers. The bottom of the box is removable, permitting convenient connection of leads. The box, except the one used for an autotransformer, contains a separator which divides it into separate compartments for the primary and secondary leads. 10 Kva and 15 Kva sizes have built-in junction box (Fig. 6), with knockouts to accomodate 1½-, 2- and 2½-in. conduit.

Fig. 11
Medium-size Type M transformer with junction box

The 90-degree junction box provided for Type D transformers is shown in Fig. 13. These boxes facilitate conduit connections, as they can be mounted on the transformer in four different positions. The use of this box is *optional* with standard Type D single-phase units, as conduit may be run directly into the side plates. However, in phase-changing and special units, the leads of which are brought through the cover, these junction boxes *must* be used for conduit connection. In all Type D transformers, separate boxes are required for primary and secondary leads.

Junction Boxes

Following are the standard junction boxes for the listed Types M and D transformers.

Cat. No.	List Price	Conduit Size	WT IN LB		Over-all Approx Dimensions in Inches
			Net	Ship.	
4255645G1	$2	½	1⅛	1⅝	4 x 4 x 1⅝
4255645G2	2	½	1	1½	4 x 4 x 1⅝
22X646	2	¾	1⅝	2⅝	4¾ x 4¾ x 2⅛
22X647	2	1	1⅝	2⅝	4¾ x 4¾ x 2⅛
22X648	2	¾	1½	2½	4¾ x 4¾ x 2⅛
22X649	2	1	1½	2½	4¾ x 4¾ x 2⅛
†5012696G1	2	1 & 1¼	1⅝	2⅝	4¾ x 4¾ x 2¼
†5012696G2	2	1 & 1¼	1½	2½	4¾ x 4¾ x 2¼
2105285G1	2	1½	2¼	3¾	5⅜ x 4⅞ x 4¾
2105286G1	2	2	3¼	4¾	6½ x 5¾ x 5⅜

† These junction boxes can be used, where the larger conduit size is desired, on transformers which ordinarily would use boxes Cat. No. 22X646, 22X647, 22X648, or 22X649.

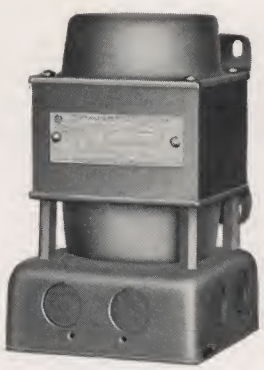


Fig. 12
Small Type M transformer with junction box

Fig. 13
Junction box for Type D transformer, showing the two parts separated

Wall Hangers
for Type D Transformers

The following wall hangers permit standard single-phase Type D service transformers, 50- or 60-cycle, to be wall mounted.

For Transformer Kva	Wall Hanger Cat. No.	List Price	APPROX WT IN LB	
			Net	Ship.
25	4255370G2	$5	6¼	8
37.5	4255370G3	5	7¼	9
50	4255370G4	5	7¾	9½

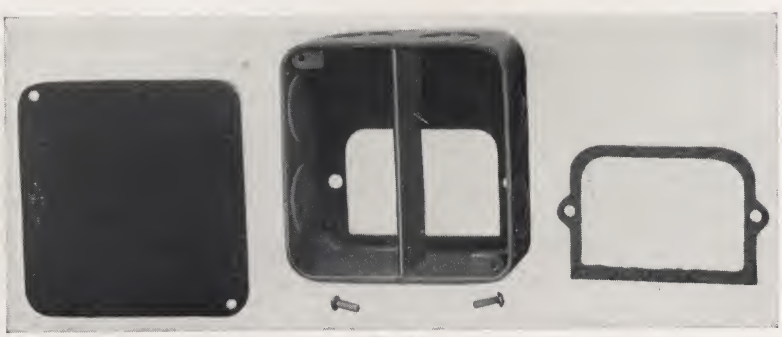


Fig. 14
Junction box for Type M transformer, showing cover, box with separator, and cork gasket

G-E AIR-COOLED TRANSFORMERS FOR SPECIAL APPLICATIONS

Where the standard ratings listed in the following pages do not meet your requirements, special transformers of either Type M or Type D can be furnished. A large stock of standard parts is carried in the factory, permitting economical assembly of these units for quick delivery. The units shown on this page are typical of the many transformers which have been built for special applications.

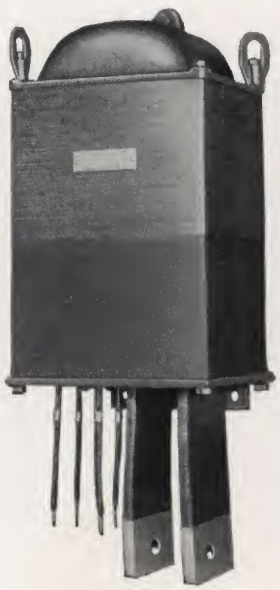


Fig. 15
Special Type M transformer for high-current, low-voltage use

Fig. 16
Special submersible transformer

Fig. 17
Type M transformer with special terminals

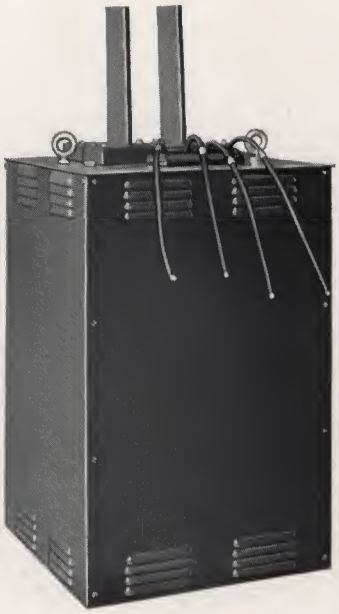


Fig. 18
Special transformer for providing variable high current

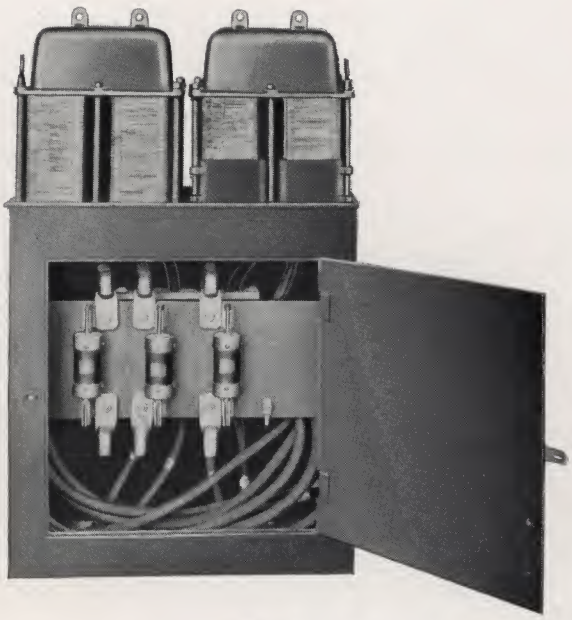


Fig. 19
Special Type M 3-phase autotransformer with fuse cabinet

§SERVICE TRANSFORMERS

To supply or insulate 115- or 230-volt circuits

Air-cooled, single-phase, 60-, 50- or 25-cycle, 0.050 to 50 kva

Oil-well, Mine, and Pump-house Service

The first three transformers listed on this page are designed especially to be used at the end of long lines such as are generally used to supply oil-well, mine, and pump-house service. Because of the wide voltage variation likely to be encountered at such locations, these transformers are designed to operate satisfactorily from 440 to 525 volts and may be used on either a 50- or a 60-cycle circuit. The secondary voltages will vary accordingly. They are arranged to be connected directly into a conduit system and are supplied with pipe nipples and 12-in. leads, as shown in Fig. 3.

General Light and Power Service

These transformers are designed to reduce the voltage of 230-, 460-, or 575-volt power circuits to either 115 or 230 volts for supplying lights and other equipment. Some of the ratings are also suitable for insulating one circuit from another without change in voltage. In addition to the many single-phase applications, they can be used in banks on polyphase circuits.

§ The classification "service" is applied to those transformers and autotransformers used to supply a standard utilization voltage from another standard utilization voltage.

60-CYCLE TRANSFORMERS

Type M—Indoor or outdoor service
Type D—Indoor service only

Type	Voltage Rating: Primary	Voltage Rating: Secondary	Kva Output Cont 55 C Rise	Catalog No.	List Price *	Approx Weight in Lb: Net	Approx Weight in Lb: Ship.	△ Approx Dimensions in Inches: Depth or Height	△ Approx Dimensions in Inches: Wall Space or Floor Space	Appearance Similar to Fig. No.	Junction Box Catalog No. (See page 8.) Not included in price or weight of transformer	Winding Diagram No. (Page 11)
FOR OIL-WELL, MINE, PUMP-HOUSE, AND SIMILAR LOCATIONS												
M †	**440** 525	**110** 131	.100	9TM852A	**$27**	13	17	3⅞	4⅞ by 11	3	Conduit connection only. (See Fig. 3.) Has a pipe nipple. 9TM852A } =¾ in. 9TM853A } 9TM854A = 1 in.	I
			.250	9TM853A	**31**	18	23	3⅞	4⅞ by 12¼	3		I
			.500	9TM854A	**42**	30	35	4½	5½ by 12⅞	3		I
FOR GENERAL LIGHT AND POWER SERVICE												
M	220 **230** 240	110 **115** 120	.050	9TM810A	**$12**	4	6	3⅜	3⅝ by 3⅞	5	4255645G1	I
			.075	9TM811A	**14**	5	7	3⅜	3⅝ by 4⅛	5		I
			.100	9TM812A	**16**	6	9	3⅜	3⅝ by 4⅜	5		I
			.150	9TM813A	**19**	7½	10½	3⅜	3⅝ by 5	5		I
			.250	9TM814A	**23**	15	20	3⅞	4⅞ by 8⅛	1	22X646 or 22X647	I
			.500	9TM815A	**32**	22	27	3⅞	4⅞ by 9¾	1		I
			.750	9TM816A	**40**	28	33	4½	5½ by 10⅛	1		I
M	110/220 **115/230** 120/240	110/220 **115/230** 120/240	1	9TM817A	**51**	35	40	4½	5½ by 11⅜	1	22X646 or 22X647	III
			1.5	9TM818A	**64**	48	55	5⅛	6½ by 12½	1		III
			2	9TM819A	**76**	60	70	5⅛	6½ by 13⅞	1		III
			3	9TM820A	**102**	90	105	6	7⅝ by 15¼	1		III
			5	9TM821A	**148**	125	145	7	8⅞ by 17¾	1		III
			7.5	9TM822A	**205**	180	200	7⅝	9⅝ by 18½	1	5012696G1	III
			10	61G95	**257**	350	375	12 1/16	14¾ by 26	6	Built-in Junction box	III
			15	63G1	**359**	485	510	12 1/16	14⅜ by 29¾	6		III
D ‡	110/220 **115/230** 120/240	110/220 **115/230** 120/240	25	9TD684A	**558**	625	750	27¼	20⅝ by 21¾	2	Use two 2105285G1	III
			37.5	9TD685A	**717**	900	1085	29¼	23⅝ by 25	2	Use one each 2105285G1 2105286G1	III
			50	9TD686A	**869**	1025	1225	29¼	24⅝ by 26	2		III
M	440 **460** 480	110 **115** 120	.050	9TM824A	**12**	4	6	3⅜	3⅝ by 3⅞	5	4255645G1	I
			.075	9TM825A	**14**	5	7	3⅜	3⅝ by 4⅛	5		I
			.100	9TM826A	**16**	6	9	3⅜	3⅝ by 4⅜	5		I
			.150	9TM827A	**19**	7½	10½	3⅜	3⅝ by 5	5		I
			.250	9TM828A	**23**	15	20	3⅞	4⅞ by 8⅛	1	22X646 or 22X647	I
			.500	9TM829A	**32**	22	27	3⅞	4⅞ by 9¾	1		I
			.750	9TM830A	**40**	28	33	4½	5½ by 10⅜	1		I
M	440 **460** 480	220 **230** 240	.050	9TM1609A	**12**	4	6	3⅜	3⅝ by 3⅞	5	4255645G1	I
			.075	9TM1610A	**14**	5	7	3⅜	3⅝ by 4⅛	5		I
			.100	9TM1611A	**16**	6	9	3⅜	3⅝ by 4⅜	5		I
			.150	9TM1612A	**19**	7½	10½	3⅜	3⅝ by 5	5		I
			.250	9TM1613A	**23**	15	20	3⅞	4⅞ by 8⅛	1	22X646 or 22X647	I
			.500	9TM1614A	**32**	22	27	3⅞	4⅞ by 9¾	1		I
			.750	9TM1615A	**40**	28	33	4½	5½ by 10⅜	1		I

* For exact discounts applying to these list prices, refer to the nearest G-E sales office. For estimating purposes, use 50 per cent discount.
† The following transformers are suitable for 50-cycle operation: Type M—Cat. No. 9TM852A, 9TM853A, and 9TM854A.
‡ These Type D transformers can be wall mounted by the use of wall hangers listed on page 8. The prices and weights given above do not include these hangers.
△For Type M transformers, use "Depth and Wall Space"; for Type D transformers, use "Height and Floor Space."

Prices and data are subject to change without notice.

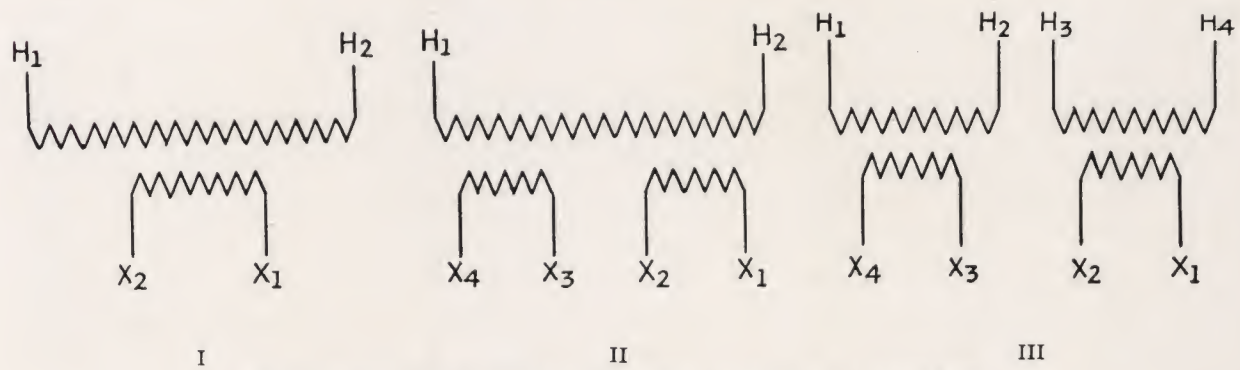
60-CYCLE TRANSFORMERS (Cont)

Type M—Indoor or outdoor service
Type D—Indoor service only

Type	VOLTAGE RATING Primary	VOLTAGE RATING Secondary	Kva Output Cont 55 C Rise	Catalog No.	List Price *	APPROX WEIGHT IN LB Net	APPROX WEIGHT IN LB Ship.	△ APPROX DIMENSIONS IN INCHES Depth or Height	△ APPROX DIMENSIONS IN INCHES Wall Space or Floor Space	Appearance Similar to Fig. No.	JUNCTION BOX Catalog No. (See page 8.) Not included in price or weight of transformer	Winding Diagram No.
M	220/440 **230/460** 240/480	110/220 **115/230** 120/240	1	9TM831A	**51**	35	40	4½	5½ by 11⅜	1	22X646 or 22X647	III
			1.5	9TM832A	**64**	47	52	5⅛	6½ by 12½	1		III
			2	9TM833A	**76**	60	70	5⅛	6½ by 13⅞	1		III
			3	9TM834A	**102**	90	105	6	7⅝ by 15¼	1		III
			5	9TM835A	**148**	125	145	7	8⅞ by 17¾	1		III
			7.5	9TM836A	**205**	180	200	7⅝	9⅝ by 18½	1	5012696G1	III
			10	61G96	**257**	350	375	12 7/16	14⅜ by 26	6	Built-in Junction box	III
			15	63G5	**359**	485	510	12 7/16	14⅜ by 29¾	6		III
D †	220/440 **230/460** 240/480	110/220 **115/230** 120/240	25	9TD30C	**558**	625	750	27¼	20⅝ by 21¾	2	Use two 2105285G1	III
			37.5	9TD31C	**717**	900	1085	29¼	23⅝ by 25	2	Use one each 2105285G1 2105286G1	III
			50	9TD32C	**869**	1025	1225	29¼	24⅝ by 26	2		III
M	550 **575** 600	110 **115** 120	.050	9TM838A	**13**	4	6	3⅜	3⅝ by 3⅞	5	4255645G1	I
			.075	9TM839A	**15**	5	7	3⅜	3⅝ by 4⅛	5		I
			.100	9TM840A	**17**	6	9	3⅜	3⅝ by 4⅜	5		I
			.150	9TM841A	**21**	7½	10½	3⅜	3⅝ by 5	5		I
			.250	9TM842A	**25**	15	20	3⅞	4⅞ by 8½	1	22X646 or 22X647	I
			.500	9TM843A	**35**	22	27	3⅞	4⅞ by 9¾	1		I
			.750	9TM844A	**43**	28	33	4½	5½ by 10⅜	1		I
M	550 **575** 600	220 **230** 240	.050	9TM1374A	**13**	4	6	3⅜	3⅝ by 3⅞	5	4255645G1	I
			.075	9TM1375A	**15**	5	7	3⅜	3⅝ by 4⅛	5		I
			.100	9TM1376A	**17**	6	9	3⅜	3⅝ by 4⅜	5		I
			.150	9TM1377A	**21**	7½	10½	3⅜	3⅝ by 5	5		I
			.250	9TM1378A	**25**	15	20	3⅞	4⅞ by 8½	1	22X646 or 22X647	I
			.500	9TM1379A	**35**	22	27	3⅞	4⅞ by 9¾	1		I
			.750	9TM1380A	**43**	28	33	4½	5½ by 10⅜	1		I
M	550 **575** 600	110/220 **115/230** 120/240	1	9TM845A	**53**	35	40	4½	5½ by 11⅜	1	22X646 or 22X647	II
			1.5	9TM846A	**67**	47	52	5⅛	6½ by 12½	1		II
			2	9TM847A	**80**	60	70	5⅛	6½ by 13⅞	1		II
			3	9TM848A	**107**	90	105	6	7⅝ by 15¼	1		II
			5	9TM849A	**155**	127	147	7	8⅞ by 17¾	1		II
			7.5	9TM850A	**214**	180	200	7⅝	9⅝ by 18½	1	5012696G1	II
			10	61G97	**269**	350	375	12 7/16	14⅜ by 26	6	Built-in Junction box	II
			15	63G9	**376**	485	510	12 7/16	14⅜ by 29¾	6		II
D †	550 **575** 600	120/220 **115/230** 120/240	25	9TD688A	**584**	625	750	27¼	20⅝ by 21¾	2	Use two 2105285G1	II
			37.5	9TD689A	**750**	900	1085	29¼	23⅝ by 25	2	Use one each 2105285G1 2105286G1	II
			50	9TD690A	**910**	1025	1225	29¼	24⅝ by 26	2		II

* For exact discounts applying to these list prices, refer to the nearest G-E sales office. For estimating purposes use 50 per cent discount.
† These Type D transformers can be wall mounted by the use of wall hangers listed on page 8. The prices and weights given above do not include these hangers.
△ For Type M transformers, use "Depth and Wall Space"; for Type D transformers, use "Height and Floor Space."

Prices and data are subject to change without notice.



I II III

Winding diagrams for transformers listed on pages 10, 11, 12 and 15

SERVICE TRANSFORMERS

To supply or insulate 115- or 230-volt circuits

Air-cooled, single-phase, 50- or 60-cycle, 0.050 to 50 kva

Type M—Indoor or outdoor service
Type D—Indoor service only

50-CYCLE TRANSFORMERS

Type	Voltage Rating Primary	Voltage Rating Secondary	Kva Output Cont 55 C Rise	Catalog No.	List Price *	Approx Weight in lb Net	Approx Weight in lb Ship.	△ Approx Dimensions in Inches Depth or Height	△ Approx Dimensions in Inches Wall Space or Floor Space	Appearance Similar to Fig. No.	Junction Box Catalog No. (See page 8) Not included in price or weight of transformer	Winding Diagram No. (Page 11)
M	220	110	.050	9TM910A	$13	4.5	7	3⅜	3⅝ by 4	5	4255645G1	I
	230	**115**	.075	9TM911A	**15**	6	8	3⅜	3⅝ by 4¾	5		I
	240	120	.100	9TM912A	**17**	7	10	3⅜	3⅝ by 4⅝	5		I
			.150	9TM913A	**20**	8.5	11	3⅜	3⅝ by 5⅜	5		I
			.250	9TM914A	**24**	17	22	3⅞	4⅞ by 8½	1	22X646	I
			.500	9TM915A	**34**	24	29	3⅞	4⅞ by 10½	1	or	I
			.750	9TM916A	**43**	32	37	4½	5½ by 10⅞	1	22X647	I
M	110/220	110/220	1	9TM917A	**54**	39	44	4½	5½ by 12	1	22X646 or 22X647	III
	115/230	**115/230**	1.5	9TM918A	**68**	53	60	5⅛	6½ by 13¼	1		III
	120/240	120/240	2	9TM919A	**83**	66	76	6	7⅝ by 13¼	1		III
			3	9TM920A	**110**	100	115	6	7⅝ by 16¼	1		III
			5	9TM921A	**162**	136	155	7	8⅞ by 18⅝	1		III
			7.5	9TM922A	**224**	196	212	7⅝	9⅝ by 19½	1	5012696G1	III
			10	61G98	**281**	370	395	12 7/16	14⅜ by 26½	6	Built-in Junction box	III
			15	63G21	**394**	485	510	12 7/16	14⅜ by 29¾	6		III
D †	110/220	110/220	25	9TD693A	**596**	625	750	27¼	20⅝ by 21¾	2	Use two 2105285G1	III
	115/230	**115/230**	37.5	9TD694A	**771**	900	1085	29¼	23⅝ by 25	2	Use one each 2105285G1-2105286G1	III
	120/240	120/240	50	9TD695A	**922**	1025	1225	29¼	24⅝ by 26	2		III
M	440	110	.050	9TM924A	**13**	4.5	7	3⅜	3⅝ by 4	5	4255645G1	I
	460	**115**	.075	9TM925A	**15**	6	8	3⅜	3⅝ by 4¾	5		I
	480	120	.100	9TM926A	**17**	7	10	3⅜	3⅝ by 4⅝	5		I
			.150	9TM927A	**20**	8.5	11	3⅜	3⅝ by 5⅜	5		I
			.250	9TM928A	**24**	17	22	3⅞	4⅞ by 8½	1	22X646	I
			.500	9TM929A	**34**	24	29	3⅞	4⅞ by 10½	1	or	I
			.750	9TM930A	**43**	32	37	4½	5½ by 10⅞	1	22X647	I
M	440	220	.050	9TM1616A	**13**	4.5	7	3⅜	3⅝ by 4	5	4255645G1	I
	460	**230**	.075	9TM1617A	**15**	6	8	3⅜	3⅝ by 4¾	5		I
	480	240	.100	9TM1618A	**17**	7	10	3⅜	3⅝ by 4⅝	5		I
			.150	9TM1619A	**20**	8.5	11	3⅜	3⅝ by 5⅜	5		I
			.250	9TM1620A	**24**	17	22	3⅞	4⅞ by 8½	1	22X646	I
			.500	9TM1621A	**34**	24	29	3⅞	4⅞ by 10½	1	or	I
			.750	9TM1622A	**43**	32	37	4½	5½ by 10⅞	1	22X647	I
M	220/440	110/220	1	9TM931A	**54**	39	44	4½	5½ by 12	1	22X646 or 22X647	III
	230/460	**115/230**	1.5	9TM932A	**68**	53	60	5⅛	6½ by 13¼	1		III
	240/480	120/240	2	9TM933A	**83**	66	76	6	7⅝ by 13¼	1		III
			3	9TM934A	**110**	100	115	6	7⅝ by 16¼	1		III
			5	9TM935A	**162**	136	155	7	8⅞ by 18⅝	1		III
			7.5	9TM936A	**224**	196	212	7⅝	9⅝ by 19½	1	5012696G1	III
			10	61G99	**281**	370	395	12 7/16	14⅜ by 26½	6	Built-in Junction box	III
			15	63G25	**394**	485	510	12 7/16	14⅜ by 29¾	6		III
D †	220/440	110/220	25	9TD30B	**596**	625	750	27¼	20⅝ by 21¾	2	Use two 2105285G1	III
	230/460	**115/230**	37.5	9TD31B	**771**	900	1085	29¼	23⅝ by 25	2	Use one each 2105285G1-2105286G1	III
	240/480	120/240	50	9TD32B	**922**	1025	1225	29¼	24⅝ by 26	2		III
M	550	110	.050	9TM938A	**14**	4.5	7	3⅜	3⅝ by 4	5	4255645G1	I
	575	**115**	.075	9TM939A	**16**	6	8	3⅜	3⅝ by 4¾	5		I
	600	120	.100	9TM940A	**18**	7	10	3⅜	3⅝ by 4⅝	5		I
			.150	9TM941A	**22**	8.5	11	3⅜	3⅝ by 5⅜	5		I
			.250	9TM942A	**26**	17	22	3⅞	4⅞ by 8½	1	22X646	I
			.500	9TM943A	**37**	24	29	3⅞	4⅞ by 10½	1	or	I
			.750	9TM944A	**46**	32	37	4½	5½ by 10⅞	1	22X647	I
M	550	220	.050	9TM1383A	**14**	4.5	7	3⅜	3⅝ by 4⅜	5	4255645G1	I
	575	**230**	.075	9TM1384A	**16**	6	8	3⅜	3⅝ by 4¾	5		I
	600	240	.100	9TM1385A	**18**	7	10	3⅜	3⅝ by 4⅝	5		I
			.150	9TM1386A	**22**	8.5	11	3⅜	3⅝ by 5⅜	5		I
			.250	9TM1387A	**26**	17	22	3⅞	4⅞ by 8½	1	22X646	I
			.500	9TM1388A	**37**	24	29	3⅞	4⅞ by 10½	1	or	I
			.750	9TM1389A	**46**	32	37	4½	5½ by 10⅞	1	22X647	I
M	550	110/220	1	9TM945A	**57**	39	44	4½	5½ by 12	1	22X646 or 22X647	II
	575	**115/230**	1.5	9TM946A	**71**	53	60	5⅛	6½ by 13¼	1		II
	600	120/240	2	9TM947A	**87**	66	76	6	7⅝ by 13¼	1		II
			3	9TM948A	**115**	100	115	6	7⅝ by 16¼	1		II
			5	9TM949A	**170**	136	155	7	8⅞ by 18⅝	1		II
			7.5	9TM950A	**234**	196	212	7⅝	9⅝ by 19½	1	5012696G1	II
			10	61G100	**294**	370	395	12 7/16	14⅜ by 26½	6	Built-in Junction box	II
			15	63G29	**413**	485	510	12 7/16	14⅜ by 29¾	6		II
D †	550	110/220	25	9TD697A	**624**	625	750	27¼	20⅝ by 21¾	2	Use two 2105285G1	II
	575	**115/230**	37.5	9TD698A	**807**	900	1085	29¼	23⅝ by 25	2	Use one each 2105285G1-2105286G1	II
	600	120/240	50	9TD699A	**966**	1025	1225	29¼	24⅝ by 26	2		II

*For exact discounts, refer to the nearest G-E sales office. For estimating purposes, use 50 per cent discount.

† These Type D transformers can be wall mounted by using the wall hangers listed on page 8. Prices and weights given above do not include hangers.

△For Type M transformers, use "Depth and Wall Space"; for Type D transformers, use "Height and Floor Space."

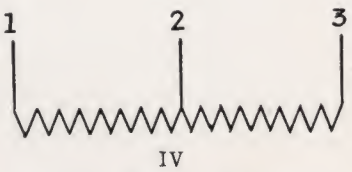
Prices and data are subject to change without notice.

SERVICE AUTOTRANSFORMERS
FOR GENERAL LIGHT AND POWER SERVICE

To supply 115- and 230-volt circuits

Air-cooled, single-phase, 60-, 50- or 25-cycle, 0.250 to 25 kva

Autotransformers are more economical and smaller than a transformer designed to carry the same load. Within their voltage limitations, they will perform the same function as service transformers with the exception of insulating two circuits. They may be used to obtain 115 volts from a 230-volt circuit, to derive a neutral on a 230-volt, 2-wire circuit, or to balance a 115/230-volt, 3-wire circuit. They also may be used in banks on polyphase circuits.



Winding diagram for service autotransformers

60-CYCLE AUTOTRANSFORMERS

Indoor or outdoor service

Type	Voltage Rating: Primary	Voltage Rating: Secondary	Kva Output Cont 55 C Rise †	Catalog No.	List Price *	Approx Weight in Lb: Net	Approx Weight in Lb: Ship.	Approx Dimensions in Inches: Depth	Approx Dimensions in Inches: Wall Space	Appearance Similar to Fig. No. ‡	Junction Box Catalog No. (See page 8) Not included in price or weight of transformer	Winding Diagram No.
M	220 **230** 240	110 **115** 120 2-wire or 220/110 **230/115** 240/120 3-wire	.250	9AM801A	**$18**	7	10	3¾	3⅝ by 4½	5	4255645G2	IV
			.500	9AM802A	**23**	10	13	3⅞	3⅝ by 5⅞	5		IV
			.750	9AM803C	**28**	21	26	3⅞	4⅞ by 9½	1	22X648 or 22X649	IV
			1	9AM804C	**32**	24	29	3⅞	4⅞ by 10¼	1		IV
			1.5	9AM805C	**40**	31	36	4½	5½ by 10⅝	1		IV
			2	9AM806C	**48**	35	40	4½	5½ by 11⅜	1		IV
			3	9AM807C	**60**	49	54	5⅛	6½ by 12⅝	1		IV
			5	9AM808C	**84**	75	90	6	7⅝ by 13¾	1	5012696G2	IV
			7.5	9AM809C	**112**	110	125	7	8⅞ by 16	1		IV
			10	9AM810C	**140**	135	155	7	8⅞ by 18¾	1		IV
			15	9AM811A	**193**	180	200	7⅝	9⅝ by 18½	1		IV
			25	64G12	**291**	420	445	$12\frac{7}{16}$	14⅜ by 27¾	6	Built-in Junction box	IV

50-CYCLE AUTOTRANSFORMERS

M	220 **230** 240	110 **115** 120 2-wire or 220/110 **230/115** 240/120 3-wire	.250	9AM901A	**$19**	8	11	3⅜	3⅝ by 4¾	5	4255645G2	IV
			.500	9AM902A	**24**	17	22	3⅞	4⅞ by 8½	1	22X648 or 22X649	IV
			.750	9AM903A	**29**	20	25	3⅞	4⅞ by 9½	1		IV
			1	9AM904A	**34**	24	29	3⅞	4⅞ by 10½	1		IV
			1.5	9AM905A	**43**	32	37	4½	5½ by 10⅞	1		IV
			2	9AM906A	**51**	39	44	4½	5½ by 12	1		IV
			3	9AM907A	**64**	53	60	6	7⅝ by 13¼	1		IV
			5	9AM908A	**91**	85	100	6	7⅝ by 14½	1	5012696G2	IV
			7.5	9AM909A	**122**	120	137	7	8⅞ by 17	1		IV
			10	9AM910A	**153**	136	155	7	8⅞ by 18⅝	1		IV
			15	9AM911A	**211**	196	212	7⅝	9⅝ by 19½	1		IV
			25	64G112	**320**	430	455	$12\frac{7}{16}$	14⅜ by 28⅜	6	Built-in Junction box	IV

NOTE—Care should be exercised in ordering autotransformers that the installation will meet local electrical inspectors' requirements.
* For exact discounts, applying to these list prices, refer to the nearest G-E sales office. For estimating use 50 per cent discount.
† Kva output at 110, 115, or 120 volts 2-wire, or allowable unbalancing at 110/220-, 115/230-, or 120/240-volt, 3-wire.
‡ These autotransformers are similar to the figures indicated except that they have only three leads.

Prices and data are subject to change without notice.

SERVICE TRANSFORMERS
FOR 32-VOLT APPLICATIONS

Air-cooled, single-phase, 60-, 50- or 25-cycle, 0.100 to 5 kva

These transformers derive 32-volt circuits from 115- or 230-volt lighting or power circuits. Thirty-two-volt portable lamps and portable tools are frequently used in mines, steel plants, meat-packing plants, and in damp locations to prevent injury in case of accidental grounding of the circuit through the operator's body. Thirty-two-volt lamps are often more economical and have longer life than those rated at higher voltages.

These transformers can also be used as autotransformers to boost the voltage of circuits in a manner similar to that described on page 16. When so connected, the kva output of each transformer will equal the kva output listed below multiplied by $\left(\frac{HV}{HV-LV}\right)$, and the kva output of a three-phase bank will be three times that of each unit.

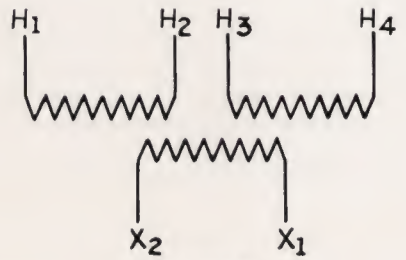


Diagram No. V

Winding diagram for service transformers

Indoor or outdoor service

60-CYCLE TRANSFORMERS

Type	Voltage Rating Primary	Voltage Rating Secondary	Kva Output Cont 55 C Rise	Catalog No.	List Price *	Approx Weight in Lb Net	Approx Weight in Lb Ship.	Approx Dimensions in Inches Depth	Approx Dimensions in Inches Wall Space	Appearance Similar to Fig. No.	Junction Box Cat. No. (see page 8). Not included in price or weight of transformer: When used as a transformer	Junction Box Cat. No. (see page 8). Not included in price or weight of transformer: When used as an autotransformer	Winding Diagram No.
M	110/220 **115/230** 120/240	30.6 **32** 33.4	.100	9TM1290A	**$18**	6	9	3⅜	3⅝ by 4⅜	5	4255645G1	4255645G2	V
			.150	9TM1382A	**21**	7½	10½	3⅜	3⅝ by 5	5			V
			.250	9TM1291A	**25**	15	20	3⅞	4⅞ by 8⅛	1	22X646 or 22X647	22X648 or 22X649	V
			.500	9TM1260A	**35**	22	27	3⅞	4⅞ by 10	1			V
			.750	9TM1017A	**44**	28	33	4½	5½ by 10⅜	1			V
			1	9TM1292A	**53**	35	40	4½	5½ by 11⅜	1			V
			1.5	9TM1147A	**66**	48	55	5⅛	6½ by 12⅜	1	5012696G1	5012696G2	V
			2	9TM1293A	**79**	60	70	5⅛	6½ by 14⅜	1	Leads too heavy for standard junction box.		V
			3	9TM1294A	**106**	90	105	6	7⅝ by 15¼	1			V
			5	9TM1295A	**154**	125	145	7	8⅞ by 17⅝	1			V

50-CYCLE TRANSFORMERS

Type	Voltage Rating Primary	Voltage Rating Secondary	Kva Output Cont 55 C Rise	Catalog No.	List Price *	Approx Weight in Lb Net	Approx Weight in Lb Ship.	Approx Dimensions in Inches Depth	Approx Dimensions in Inches Wall Space	Appearance Similar to Fig. No.	Junction Box Cat. No. (see page 8). Not included in price or weight of transformer: When used as a transformer	Junction Box Cat. No. (see page 8). Not included in price or weight of transformer: When used as an autotransformer	Winding Diagram No.
M	110/220 **115/230** 120/240	30.6 **32** 33.4	.100	9TM1391A	**$19**	8	11	3⅜	3⅝ by 5	5	4255645G1	4255645G2	V
			.150	9TM1392A	**22**	10	13	3⅜	3⅝ by 5½	5			V
			.250	9TM1393A	**26**	17	22	3⅞	4⅞ by 8¾	1	22X646 or 22X647	22X648 or 22X649	V
			.500	9TM1394A	**37**	26	31	3⅞	4⅞ by 10¾	1			V
			.750	9TM1395A	**47**	36	41	4½	5½ by 11	1			V
			1	9TM1396A	**56**	40	47	4½	5½ by 12¼	1			V
			1.5	9TM1397A	**70**	53	60	5⅛	6½ by 13¼	1	5012696G1	5012696G2	V
			2	9TM1398A	**86**	66	76	6	7⅝ by 13¼	1	Leads too heavy for standard junction box		V
			3	9TM1399A	**114**	100	115	6	7⅝ by 16¼	1			V
			5	9TM1400A	**168**	136	155	7	8⅞ by 18⅝	1			V

* For exact discounts applying to these list prices, refer to the nearest G-E sales office. For estimating purposes, use 50 per cent discount

Prices and data are subject to change without notice.

TRANSFORMERS FOR SIGN LIGHTING

and other 11½- or 23-volt applications

Air-cooled, single-phase, 50- or 60-cycle, 0.100 to 5 kva

These transformers are designed primarily for sign lighting. As they are compact, light in weight, and weatherproof, they can be mounted in any convenient location, such as the back of the sign.

They have, however, a very wide range of application, as both the primary and secondary windings are arranged for series-multiple connections. They may be connected as a transformer with the secondary supplying 11½ or 23 volts, 2-wire, or a 23/11½ volts, 3-wire; also as an autotransformer to deliver 126½ or 138 volts from a 115-volt supply, or 241½ or 253 volts from a 230-volt supply. Two or more units may be used in various combinations to obtain many other special voltages.

One of the many special applications is pipe thawing. Two transformers are used, the primaries being connected in multiple and the secondaries in series to give 46 volts. This gives sufficient capacity for thawing pipes up to two inches diameter. The current can be controlled to some extent by looping the secondary cables.

60-CYCLE TRANSFORMERS

Indoor or outdoor service

Type	Voltage Rating		Kva Output Cont 55 C Rise	Catalog No.	List Price *	Approx Weight in Lb		Approx Dimensions in Inches		Appearance Similar to Fig. No.	Junction Box Cat. No. (see page 8). Not included in price or weight of transformer		Winding Diagram No. (Page 11)
	Primary	Secondary				Net	Ship.	Depth	Wall Space		When used as a transformer	When used as an autotransformer	
M	110/220 **115/230** 120/240	11/22 **11½/23** 12/24	.100	9TM801A	**$18**	7	10	3⅜	3⅝ by 5	5	4255645G1	4255645G2	III
			.150	9TM1381A	**21**	7½	10½	3⅜	3⅝ by 6	5			
			.250	9TM802A	**26**	15	20	3⅞	4⅞ by 8⅛	1	22X646 or 22X647	22X648 or 22X649	III
			.500	9TM803A	**36**	24	29	3⅞	4⅞ by 10	1			III
			.750	9TM804A	**45**	30	35	4½	5½ by 10⅜	1			III
			1	9TM805A	**54**	35	40	4½	5½ by 11⅛	1			III
			1.5	9TM806A	**68**	48	53	5⅛	6½ by 12½	1	5012696G1	5012696G2	III
			2	9TM807A	**81**	60	70	5⅛	6½ by 14⅜	1	Leads too heavy for standard junction box		III
			3	9TM808A	**108**	95	105	6	7⅝ by 17½	15			III
			5	9TM809A	**158**	125	145	7	8⅞ by 19⅛	15			III

50-CYCLE TRANSFORMERS

Indoor or outdoor service

M	110/220 **115/230** 120/240	11/22 **11½/23** 12/24	.100	9TM901A	**$19**	8	11	3⅜	3⅝ by 5	5	4255645G1	4255645G2	III
			.150	9TM1390A	**23**	10	13	3⅜	3⅝ by 5½	5			
			.250	9TM902A	**27**	17	22	3⅞	4⅞ by 8¾	1	22X646 or 22X647	22X648 or 22X649	III
			.500	9TM903A	**38**	26	31	3⅞	4⅞ by 10¾	1			III
			.750	9TM904A	**49**	36	41	4½	5½ by 11	1			III
			1	9TM905A	**58**	40	47	4½	5½ by 12¼	1			III
			1.5	9TM906A	**72**	53	60	5⅛	6½ by 13¼	1	5012696G1	5012696G2	III
			2	9TM907A	**88**	70	87	6	7⅝ by 14½	1	Leads too heavy for standard junction box		III
			3	9TM908A	**118**	105	120	6	7⅝ by 18	15			III
			5	9TM909A	**173**	135	155	7	8⅞ by 19½	15			III

* For exact discounts applying to these list prices, refer to the nearest G-E sales office. For estimating purposes, use 50 per cent discount.

Prices and data are subject to change without notice.

TRANSFORMERS USED AS AUTOTRANSFORMERS FOR BOOSTING VOLTAGE

Air-cooled, single- or three-phase, 60-cycle, 1.8 to 315 (three-phase) kva

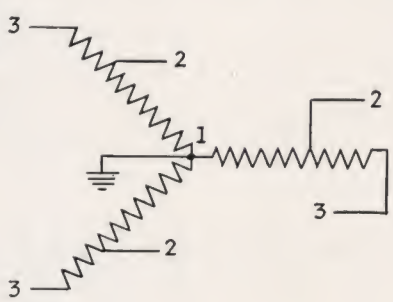
The sign-lighting transformers listed on page 15 are extensively used for boosting single- or three-phase circuits by connecting them as autotransformers. They are particularly adapted for boosting the three-phase voltage of a secondary network system.

As they can be connected in series or in multiple, a 5-, 10-, or 20-per-cent boost is possible, as shown in the tabulation below. Because of the small voltage change required in such applications, the output of these small transformers is exceedingly large in comparison with their physical size.

When used in a three-phase bank, these single-phase units are Y-connected, as shown in the diagram below.

Connection No. 1
1 to 2, 115-volt coils in parallel
2 to 3, 11½-volt coils in parallel
Ratio (single-phase unit) 115/126.5
Ratio (three-phase bank) 199Y/220Y

Connection No. 2
1 to 2, 115-volt coils in parallel
2 to 3, 11½-volt coils in series
Ratio (single-phase unit) 115/138
Ratio (three-phase bank) 199Y/239Y



Connection No. 3
1 to 2, 115-volt coils in series
2 to 3, 11½-volt coils in parallel
Ratio (single-phase unit) 230/241.5
Ratio (three-phase bank) 398Y/420Y

Connection No. 4
1 to 2, 115-volt coils in series
2 to 3, 11½-volt coils in series
Ratio (single-phase unit) 230/253
Ratio (three-phase bank) 398Y/440Y

UNIT KVA OF TRANSFORMER	Kva Bank Output—3 Units Y Connected as Autotransformers			
	CONNECTION NO.			
	1	2	3	4
.100	3.3	1.8	6.3	3.3
.150	4.95	2.7	9.45	4.95
.250	8.25	4.5	15.75	8.25
.500	16.5	9	31.7	16.5
.750	24.75	13.5	47.25	24.75
1	33	18	63	33
1.5	49.5	27	94.5	49.5
2	66	36	126	66
3	99	54	189	99
5	165	90	315	165

The kva output of one single-phase unit, connected as an autotransformer, is one-third of the bank output.

AUTOTRANSFORMERS FOR BOOSTING VOLTAGE

Air-cooled, three-phase, 60-cycle, 1 to 250 kva

The Y-connected autotransformers listed below are designed primarily to boost the voltage of a three-phase secondary network system. They give the desired voltage at the minimum cost. Because of the small physical size as compared to the kva output of the bank, an installation very compact and neat in appearance is obtained.

Autotransformers of the ratings listed consist of three units with three leads brought out of each unit. In banks with a rated output of 50 kva and below, the three units are mounted side by side on a metal plate (Fig. 9). The larger banks consist of three separate units to be individually mounted.

Although the 208- to 230-volt transformation is most common, a great many special ratios are required, such as 199 to 230 volts, or 208 to 230 and 240 volts. Autotransformers of all these special ratios can be furnished quickly and economically, as the same parts and construction are used as on the listed ratings.

Indoor or outdoor service

Type	VOLTAGE RATING		Bank Kva Output Cont 55 C Rise	Catalog No.	List Price *	APPROX WEIGHT IN LB		APPROX DIMENSIONS IN INCHES		Appearance Similar to Fig. No.	Winding Diagram No.
	Primary	Secondary				Net	Ship.	Depth	Wall Space		
THREE-PHASE Y-CONNECTED AUTOTRANSFORMERS											
M	199Y **208Y**	220Y **230Y**	1	9AM632A	**$37**	12½	22	3½	12⅞ by 4⅛	10†	VI
			2	9AM633A	**42**	15¼	25	3½	12⅞ by 4⅜	10†	VI
			3	9AM634A	**51**	18	28	3½	12⅞ by 4¾	10†	VI
			5	9AM635A	**63**	25	36	3½	12⅞ by 5⅝	10†	VI
			7.5	9AM636A	**74**	50	62	4⅜	17 by 9½	10	VI
			10	9AM637A	**82**	58	70	4⅜	17 by 10	10	VI
			15	9AM638A	**99**	70	85	4⅜	17 by 10⅞	10	VI
			25	9AM639A	**135**	102	120	5⅛	19 by 12¼	10	VI
			37.5	9AM640A	**170**	120	140	5⅛	19 by 13⅜	10	VI
			50	9AM641A	**199**	175	200	5⅞	22 by 12½	10	VI
			75	9AM642A	**263**	68	85	6	7⅝ by 13½	1	VI
			100	9AM643A	**321**	86	105	6	7⅝ by 15	1	VI
			150	9AM644A	**433**	153	175	7⅝	9⅝ by 22½	1	VI
			200	9AM645A	**542**	170	200	7⅝	9⅝ by 24	1	VI
			250	9AM646A	**648**	220	250	7⅝	9⅝ by 26½	1	VI
M	199 **208** 217	230 **240** 250	1	9AM1100A	**39**	14¼	23	3½	12⅞ by 4¼	10†	VI
			2	9AM1101A	**48**	18	28	3½	12⅞ by 4⅝	10†	VI
			3	9AM1102A	**58**	24	35	3½	12⅞ by 5¼	10†	VI
			5	9AM1103A	**71**	27	38	3½	12⅞ by 6⅜	10†	VI
			7.5	9AM1104A	**83**	60	72	4⅜	17 by 10⅛	10	VI
			10	9AM1105A	**96**	80	95	4⅜	17 by 11½	10	VI
			15	9AM1106A	**119**	97	115	5⅛	19 by 11⅞	10	VI
			25	9AM1107A	**161**	118	138	5⅛	19 by 13½	10	VI
			37.5	9AM1108A	**205**	175	200	5⅞	22 by 12⅝	10	VI
			50	9AM1109A	**247**	230	260	7	26 by 12¾	10	VI
			75	9AM1110A	**331**	100	120	6	7⅝ by 16	1	VI
			100	9AM1111A	**411**	120	140	7	8⅞ by 17¼	1	VI
			150	9AM1112A	**562**	170	200	7⅝	9⅝ by 25⅝	1	VI
			200	9AM1113A	**709**	210	240	7⅝	9⅝ by 28¼	1	VI
			250	9AM1114A	**851**	325	360	10⅝	11¾ by 24½	1	VI

* For exact discounts applying to these list prices, refer to the nearest G-E sales office. For estimating, use 50 per cent discount.

NOTE—Care should be exercised in ordering autotransformers that the installation will meet local electrical inspectors' requirements.

JUNCTION BOXES—Because of the heavy secondary leads and complications in connections, standard junction boxes are not recommended. When enclosed wiring is desired, a modified design can be furnished.

† The individual units are similar to Fig. 5, except that they have only three leads and are mounted as shown in Fig. 10.

NOTE—In banks with rated output of 50 kva and below, three units are mounted side by side on a metal plate. Weights and dimensions given are for complete equipments. The larger banks consist of three separate units for individual mounting, and the weights and dimensions are for individual units.

Prices and data are subject to change without notice.

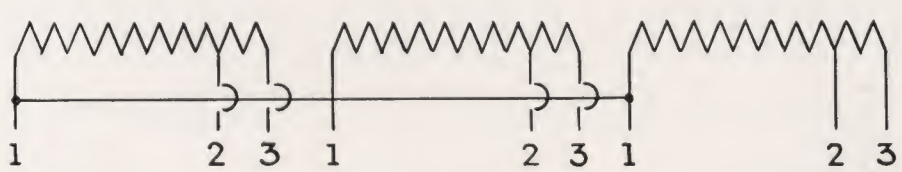


Diagram No. VI

Winding diagram of three single-phase units connected as a three-phase bank

TRANSFORMERS AND AUTOTRANSFORMERS FOR PHASE CHANGING

Air-cooled, 3- to 2-, or 2- to 3-phase, 60-cycle, 1 to 50 kva

Phase-changing transformers and autotransformers are primarily of use when a phase change is made on a distribution system. They permit the economical use of motors and other polyphase equipment which would otherwise become obsolete.

The two lines of autotransformers are not interchangeable, and it is necessary to determine whether the two-phase circuit is 3-wire or 4-wire in order to select the proper unit. These autotransformers cannot be used on a 4-wire circuit having the mid-points of the two phases connected. For this application, the two-winding transformer is recommended, although especially designed autotransformers can be furnished.§

Type M—Indoor or outdoor service
Type D—Indoor service only

Type	VOLTAGE RATING 3-phase	VOLTAGE RATING 2-phase	Bank Kva Output Cont 55 C Rise	Catalog No.	List Price *	APPROX WEIGHT IN LB Net	APPROX WEIGHT IN LB Ship.	△ APPROX DIMENSIONS IN INCHES Depth	△ APPROX DIMENSIONS IN INCHES Wall Space	Appearance Similar to Fig. No.	JUNCTION BOX Catalog No. (see page 8). Not included in price or weight of transformer	Winding Diagram No.
TRANSFORMERS												
M	220 **230** 240	220 **230** 240 3- or 4-wire	1	9TM855B	**$78**	54	60	4½	5½ by 16⅞	4	22X646 or 22X647	VII
			3	9TM856B	**144**	98	110	5⅛	6½ by 23¾	4		VII
			5	9TM857B	**192**	165	185	6	7⅝ by 26⅞	4		VII
			7.5	9TM858B	**252**	215	235	7	8⅞ by 28⅞	4		VII
			10	9TM859B	**309**	255	280	7	8⅞ by 32⅛	4		VII
			15	9TM860B	**420**	305	335	7⅝	9⅝ by 32⅝	4	5012696G1	VII
D	220 **230** 240	220 **230** 240 3- or 4-wire	25	9TD211B	**$627**	640	675	26¼	15¾ by 32	7	Use two 2105286G1	VII
			37.5	9TD212B	**873**	800	850	26¼	16½ by 33	7		VII
			50	9TD213B	**1107**	985	1050	26¼	17½ by 35¾	7		VII
AUTOTRANSFORMERS for 2-phase, 4-wire												
M	220 **230** 240	220 **230** 240 4-wire	1	9AM813B	**$41**	13	17	3⅜	3⅝ by 9	4	22X648 or 22X649	VIII
			3	9AM814B	**66**	33	38	3⅞	4⅞ by 15	4		VIII
			5	9AM815B	**81**	48	55	4½	5½ by 15¾	4		VIII
			7.5	9AM816B	**99**	65	75	4½	5½ by 18⅛	4		VIII
			10	9AM817B	**116**	77	88	5⅛	6½ by 19½	4		VIII
			15	9AM818B	**147**	95	110	5⅛	6½ by 22	4	5012696G2	VIII
			25	9AM819B	**198**	155	175	6	7⅝ by 25½	4		VIII
			37.5	9AM820B	**264**	215	240	7	8⅞ by 29½	4		VIII
			50	9AM821B	**321**	275	300	7⅝	9⅝ by 28⅞	4		VIII
AUTOTRANSFORMERS for 2-phase, 3-wire												
M	220 **230** 240	220 **230** 240 3-wire	1	9AM822B	**$45**	16	19	3⅜	3⅝ by 10⅛	4	22X648 or 22X649	IX
			3	9AM823B	**72**	37	42	3⅞	4⅞ by 16⅜	4		IX
			5	9AM824B	**92**	56	65	4½	5½ by 17¾	4		IX
			7.5	9AM825B	**114**	70	80	5⅛	6½ by 19½	4		IX
			10	9AM826B	**137**	87	100	5⅛	6½ by 22	4		IX
			15	9AM827B	**171**	130	150	6	7⅝ by 23¼	4	5012696G2	IX
			25	9AM828B	**240**	190	215	7	8⅞ by 27⅜	4		IX
			37.5	9AM829B	**320**	250	275	7⅝	9⅝ by 27⅝	4		IX
			50	9AM830B	**395**	305	335	7⅝	9⅝ by 30⅞	4		IX

NOTE—Care should be exercised in ordering autotransformers that the installation will meet local electrical inspectors' requirements.
* For exact discounts applying to these list prices, refer to the nearest G-E sales office. For estimating, use 50 per cent discount.
△For Type M transformers, use "Depth and Wall Space"; for Type D transformers, use "Height and Floor Space."
§ Standard phase-changing autotransformers can not be used on interconnected 2-phase, 5-wire circuits.

Prices and data are subject to change without notice.

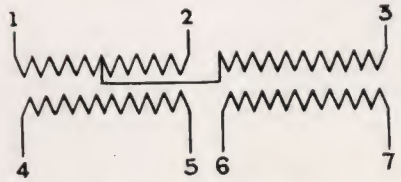


Diagram No. VII
3-phase lines—1, 2, and 3
2-phase lines—4 and 5, 6 and 7

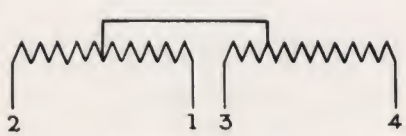


Diagram No. VIII
3-phase lines—1, 2, and 4
2-phase, 4-wire lines—1 and 2, 3 and 4

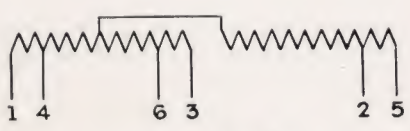


Diagram No. IX
3-phase lines—4, 5, and 6
2-phase, 3-wire lines—1 and 2, 2 and 3

Winding diagrams for phase-changing transformers and autotransformers

TRANSFORMERS AND AUTOTRANSFORMERS FOR PHASE CHANGING

Air-cooled, 3- to 2-, or 2- to 3-phase, 60-cycle, 1 to 50 kva

Type M—Indoor or outdoor service
Type D—Indoor service only

Type	VOLTAGE RATING		Bank Kva Output Cont 55 C Rise	Catalog No.	List Price *	APPROX WEIGHT IN LB		△ APPROX DIMENSIONS IN INCHES		Appearance Similar to Fig. No.	JUNCTION BOX Catalog No. (see page 8). Not included in price or weight of transformer	Winding Diagram No. (Pages 18 and 19)
	3-phase	2-phase				Net	Ship.	Depth or Height	Wall Space or Floor Space			
TRANSFORMERS												
M	199 **208** 217	220 **230** 240 3- or 4-wire	1	9TM1630A	**$78**	54	60	4 1/2	5 1/2 by 16 7/8	4	22X646 or 22X647	VII
			3	9TM1631A	**144**	98	110	5 1/8	6 1/2 by 23 3/4	4		VII
			5	9TM1632A	**192**	165	185	6	7 5/8 by 26 7/8	4		VII
			7.5	9TM1633A	**252**	215	235	7	8 7/8 by 28 7/8	4		VII
			10	9TM1634A	**309**	255	280	7	8 7/8 by 32 1/8	4		VII
			15	9TM1635A	**420**	305	335	7 5/8	9 5/8 by 32 5/8	4	5012696G1	VII
D	199 **208** 217	220 **230** 240 3- or 4-wire	25	9TD985A	**627**	640	675	26 1/4	15 3/4 by 32	7	Use two 2105286G1	VII
			37.5	9TD986A	**873**	800	850	26 1/4	16 1/2 by 33	7		VII
			50	9TD987A	**1107**	985	1050	26 1/4	17 1/2 by 35 3/4	7		VII
AUTOTRANSFORMERS for 2-phase, 4-wire												
M	199 **208** 217	220 **230** 240 4-wire	1	9AM1115A	**$45**	16	19	3 3/8	3 5/8 by 10 1/8	4	22X648 or 22X649	X
			3	9AM1116A	**72**	37	42	3 7/8	4 7/8 by 16 3/8	4		X
			5	9AM1117A	**92**	56	65	4 1/2	5 1/2 by 17 3/4	4		X
			7.5	9AM1118A	**114**	70	80	5 1/8	6 1/2 by 19 1/2	4		X
			10	9AM1119A	**137**	87	100	5 1/8	6 1/2 by 22	4		X
			15	9AM1120A	**171**	130	150	6	7 5/8 by 23 1/4	4	5012696G2	X
			25	9AM1121A	**240**	190	215	7	8 7/8 by 27 3/8	4		X
			37.5	9AM1122A	**320**	260	285	7 5/8	9 3/8 by 28 1/8	4		X
			50	9AM1123A	**395**	320	350	7 5/8	9 5/8 by 32	4		X
AUTOTRANSFORMERS for 2-phase, 3-wire												
M	199 **208** 217	220 **230** 240 3-wire	1	9AM1124A	**$45**	16	19	3 3/8	3 5/8 by 10 1/8	4	22X648 or 22X649	IX
			3	9AM1125A	**72**	37	42	3 7/8	4 7/8 by 16 3/8	4		IX
			5	9AM1126A	**92**	56	65	4 1/2	5 1/2 by 17 3/4	4		IX
			7.5	9AM1127A	**114**	70	80	5 1/8	6 1/2 by 19 1/2	4		IX
			10	9AM1128A	**135**	87	100	5 1/8	6 1/2 by 22	4		IX
			15	9AM1129A	**168**	130	150	6	7 5/8 by 23 1/4	4	5012696G2	IX
			25	9AM1130A	**234**	190	215	7	8 7/8 by 27 3/8	4		IX
			37.5	9AM1131A	**318**	255	280	7 5/8	9 5/8 by 28	4		IX
			50	9AM1132A	**387**	400	440	10 3/8	11 3/4 by 32	4		IX

* For exact discounts applying to these list prices, refer to the nearest G-E sales office. For estimating purposes, use 50 per cent discount.
△ For Type M transformers, use "Depth and Wall Space"; for Type D transformers, use "Height and Floor Space."

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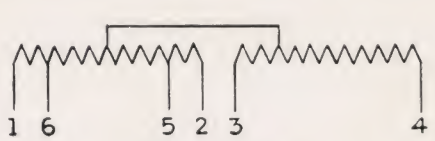


Diagram No. X
3-phase lines—4, 5, and 6
2-phase, 4-wire lines—1, 2, 3, and 4
Winding diagrams for phase-changing transformers and autotransformers

AIR-COOLED AUTOTRANSFORMERS

TYPE M

230 Volts, 3-phase to 230, 460 or 575 Volts, 3-phase or 2-phase, 4-wire, 60 Cycles, 5 to 50 Kva

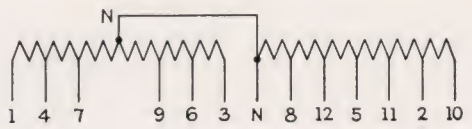
To transform the available shop circuit to the required test voltage in plants where 2-phase and 3-phase equipment must be tested. The ratings listed cover usual requirements. Special ratings for unusual requirements can be furnished. These autotransformers cannot be used to test two-phase motors or other equipment having the phases interconnected.

Type M—Indoor or Outdoor Service

Type	VOLTAGE RATING		Bank Kva Output Cont 55 C Rise	Cat. No.	List Price *	APPROX WT† in Lb		APPROX DIMENSIONS† IN INCHES		Appearance Similar to Fig. No.	Junction Box (See page 8) not included in price or weight of transformer	Winding Diagram No.
	3-phase	3-phase or 2-phase 4-wire				Net	Ship.	Depth	Wall Space			
M	230	230	5	65G511	**$188**	75	90	6	7⅝ x 13½	1	(Use 2) 5012696G2 Built-in junction box	XI
		460	10	65G512	**300**	120	140	7	8⅞ x 17	1		XI
		575	15	65G513	**402**	165	190	7⅝	9⅝ x 17½	1		XI
			25	65G514	**600**	320	350	12½	14⅜ x 22	6		XI
			50	65G515	**1047**	500	550	12½	14⅜ x 27	6		XI

* For exact discounts applying to these list prices, refer to the nearest G-E sales office. For estimating use 50 per cent discount.
† These banks consist of separate, noninterchangeable main and teaser units. Both units are same size. Weights and dimensions are for one unit.

Prices and data are subject to change without notice.



XI

3-phase	2-phase, 4-wire
230 volts—7, 8, 9	230 volts—7–9, N-12
460 volts—4, 5, 6	460 volts—4–6, N-11
575 volts—1, 2, 3	575 volts—1–3, N-10

GENERAL ELECTRIC COMPANY

GENERAL OFFICE, SCHENECTADY, N. Y.

SALES OFFICES (Address nearest office)

Akron, Ohio	335 South Main Street
Atlanta, Ga.	187 Spring Street, Northwest
Baltimore, Md.	39 West Lexington Street
Bangor, Me.	600 Main Street
Binghamton, N. Y.	19 Chenango Street
Birmingham, Ala.	600 North Eighteenth Street
Boston, Mass.	140 Federal Street
Buffalo, N. Y.	1 West Genesee Street
Butte, Mont.	20 West Granite Street
Cedar Rapids, Iowa	203 Second Street, Southeast
Charleston, W. Va.	304 Capitol Street
Charlotte, N. C.	200 South Tryon Street
Chicago, Ill.	230 South Clark Street
Cincinnati, Ohio	215 West Third Street
Cleveland, Ohio	4966 Woodland Avenue
Columbus, Ohio	40 South Third Street
Dallas, Texas	1801 North Lamar Street
Davenport, Iowa	511 Pershing Avenue
Dayton, Ohio	25 North Main Street
Denver, Colo.	650 Seventeenth Street
Des Moines, Iowa	418 West Sixth Avenue
Detroit, Mich.	700 Antoinette Street
Duluth, Minn.	14 West Superior Street
El Paso, Texas	109 North Oregon Street
Erie, Pa.	10 East Twelfth Street
Fort Wayne, Ind.	1635 Broadway
Fort Worth, Texas	408 West Seventh Street
Grand Rapids, Mich.	148 Monroe Avenue, Northwest
Hartford, Conn.	338 Ann Street
Houston, Texas	1016 Walker Avenue
Indianapolis, Ind.	110 North Illinois Street
Jackson, Mich.	212 Michigan Avenue, West
Jacksonville, Fla.	237 West Forsyth Street
Kansas City, Mo.	106 West Fourteenth Street
Knoxville, Tenn.	602 South Gay Street
Los Angeles, Calif.	5201 Santa Fe Avenue
Louisville, Ky.	455 South Fourth Street
Memphis, Tenn.	8 North Third Street
Milwaukee, Wis.	940 West St. Paul Avenue
Minneapolis, Minn.	107 South Fifth Street
Nashville, Tenn.	234 Third Avenue, North
Newark, N. J.	744 Broad Street
New Haven, Conn.	129 Church Street
New Orleans, La.	837 Gravier Street
New York, N. Y.	570 Lexington Avenue
Niagara Falls, N. Y.	201 Falls Street
Oklahoma City, Okla.	119 North Robinson Street
Omaha, Nebr.	409 South Seventeenth Street
Philadelphia, Pa.	1405 Locust Street
Phoenix, Ariz.	441 West Madison Street
Pine Bluff, Ark.	501 Main Street
Pittsburgh, Pa.	436 Seventh Avenue
Portland, Me.	25 Bedford Street
Portland, Ore.	621 Southwest Alder Street
Providence, R. I.	56 Pine Street
Richmond, Va.	700 East Franklin Street
Roanoke, Va.	202 South Jefferson Street
Rochester, N. Y.	89 East Avenue
St. Louis, Mo.	112 North Fourth Street
Salt Lake City, Utah	200 South Main Street
San Antonio, Texas	201 Villita Street
San Francisco, Calif.	235 Montgomery Street
Schenectady, N. Y.	1 River Road
Seattle, Wash.	821 Second Avenue
Spokane, Wash.	421 Riverside Avenue
Springfield, Ill.	607 East Adams Street
Springfield, Mass.	95 State Street
Syracuse, N. Y.	113 South Salina Street
Tacoma, Wash.	1019 Pacific Avenue
Toledo, Ohio	420 Madison Avenue
Tulsa, Okla.	409 South Boston Street
Utica, N. Y.	258 Genesee Street
Washington, D. C.	806 Fifteenth Street, Northwest
Waterbury, Conn.	72 West Liberty Street
Wichita, Kan.	116 South Main Street
Worcester, Mass.	165 Commercial Street
Youngstown, Ohio	25 East Boardman Street

Canada: Canadian General Electric Company, Ltd., Toronto

Hawaii: W. A. Ramsay, Ltd., Honolulu

Motor Dealers and Lamp Agencies in all large cities and towns

SERVICE SHOPS

Atlanta, Ga.	496 Glenn Street, Southwest
Buffalo, N. Y.	318 Urban Street
Chicago, Ill.	509 East Illinois Street
Cincinnati, Ohio	215 West Third Street
Cleveland, Ohio	4966 Woodland Avenue
Dallas, Texas	1801 North Lamar Street
Detroit, Mich.	5950 Third Avenue
Houston, Texas	5 North Milam Street
Kansas City, Mo.	819 East Nineteenth Street
Los Angeles, Calif.	5203 Santa Fe Avenue
Milwaukee, Wis.	940 West St. Paul Avenue
Minneapolis, Minn.	410 Third Avenue, North
New York, N. Y.	416 West Thirteenth Street
Philadelphia, Pa.	429 North Seventh Street
Pittsburgh, Pa.	16 Terminal Way, South Side
St. Louis, Mo.	1110 Delmar Boulevard
Salt Lake City, Utah	360 West Second South Street
San Francisco, Calif.	361 Bryant Street
Seattle, Wash.	1508 Fourth Avenue, South

Special service divisions are also maintained at the following Works of the Company: Erie, Pa.; Ft. Wayne, Ind.; Pittsfield, Mass.; Schenectady, N. Y.; and West Lynn, Mass. (River Works and West Lynn Works).

INTERNATIONAL GENERAL ELECTRIC COMPANY, INC.

Executive Offices: 570 Lexington Avenue, New York City **SCHENECTADY, N. Y.** Cable Address: "Ingenetric New York"

PRINCIPAL FOREIGN OFFICES, ASSOCIATED COMPANIES, AND AGENTS

ARGENTINA: General Electric, S.A., Buenos Aires and Rosario

AUSTRALIA: Associated General Electric Ltd., Sydney and Melbourne

BELGIUM AND COLONIES: Societe d'Electricite et de Mecanique (Procedes Thomson-Houston & Carels), Brussels, Belgium

BRAZIL: General Electric, S. A., Rio de Janeiro, Sao Paulo, Lojas General Electric, S.A., Rio de Janeiro

CHILE: International Machinery Company, Santiago, Antofagasta, and Valparaiso

CHINA: Andersen, Meyer & Company, Ltd., Shanghai; China General Edison Company, Shanghai

COLOMBIA: International General Electric, S.A., Barranquilla, Bogota, Medellin, and Cali

CUBA: General Electric Company of Cuba, Havana

ECUADOR: Guayaquil Agencies Co., Guayaquil

EGYPT: British Thomson-Houston Company, Ltd., Cairo

FRANCE AND COLONIES: Compagnie Francaise Thomson-Houston, Paris, International General Electric Co., Inc., Paris; Compagnie Des Lampes, Paris

GERMANY: International General Electric Co., Inc., 4, Alexander Ufer, Berlin, N. W., 40

GREAT BRITAIN AND IRELAND: International General Electric Co. of New York, Ltd., London; Associated Electrical Industries, Ltd., London

GREECE AND COLONIES: Compagnie Francaise Thomson-Houston, Paris, France

HOLLAND: Mijnssen & Co., Amsterdam

INDIA: International General Electric Company (India), Ltd., Bombay

ITALY AND COLONIES: Compagnia Generale Di Elettricita, Milan

JAPAN: Shibaura Engineering Works, Tokyo; Tokyo Electric Company, Ltd., Kawasaki, Kanagawa-Ken; International General Electric Co., Inc., Tokyo

JAVA: International General Electric Co., Inc., Batavia

MEXICO: General Electric, S.A., Mexico City

NEWFOUNDLAND: International General Electric Co., Inc., St. Johns

NEW ZEALAND: National Electrical and Engineering Company, Ltd., Auckland and Wellington

PARAGUAY: General Electric, S.A., Buenos Aires, Argentina

PERU: International Machinery Co., Lima

PHILIPPINE ISLANDS: General Electric Co. (P.I.), Inc., Manila

PORTUGAL AND COLONIES: Sociedade Iberica de Construções Electricas Lda., Lisbon

PUERTO RICO: International General Electric Company of Porto Rico, San Juan

SOUTH AFRICA: South African General Electric Company, Ltd., Johannesburg and Capetown

SPAIN AND COLONIES: Geathom, S.A., Madrid and Barcelona; Sociedad Iberica de Construcciones Electricas, Madrid and Barcelona

SWITZERLAND: Trolliet Freres, Geneva

URUGUAY: General Electric, S.A., Montevideo

VENEZUELA: International General Electric, S.A., Caracas and Maracaibo

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